

## Southern African species of the genus *Tetartostylus* Wagner (Hemiptera: Cicadellidae)

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The known southern African species of the genus *Tetartostylus* are described and keyed. *T. parabolatus* (Naudé) and *T. angulatus* Linnnavuori are redescribed and the following new species are recognized: *T. pundus*, *T. brevistylus*, *T. longidentatus* and *T. inflatus*.

The genus *Tetartostylus* (and the tribe *Tetartostylini*) was instituted by Wagner (1951), with the palaearctic species, *Athysanus pellucidus* Melichar, as the type-species. The Ethiopian species of the genus may be characterized as follows.

Elongate, yellowish-green leafhoppers with head wider than pronotum (fig. 1). Thoracic pleura and abdomen dark. Crown medially about as long as next eyes, or only slightly longer; rounded to fronto-clypeus; uniformly granular, frontal and discal regions not differentiated. Coronal suture distinct. Distance between ocellus and adjacent eye about equal to diameter of ocellus. Fronto-clypeus with brownish horizontal arcs; ante-clypeus parallel-sided. Gena below lorum usually very narrow, much narrower than ocellocular region.

Pronotum about twice medial length of crown, lateral margins very short and non-carinate. Tegmina with two closed ante-apical cells and narrow appendix (fig. 2); usually laterally with white waxy spot. Hind wings with 4 apical cells. Spinulation of fore tibia somewhat variable, 1 + 4 or 1 + 5; hind femoral setal formula 2 + 2 + 1.

Anal tube of male short, with small tenth tergite. Pygofer elongate, well-sclerotized; basal part dark, devoid of setae and very extensive dorsally (fig. 4). Pygofer lobes rounded behind, light coloured, distinctly separated from rest of pygofer and without appendages but with numerous macro-setae. Plates long, sharply pointed behind and fused with triangular valve; mesal margins usually contiguous (but not fused) for some distance; ventro-laterally with uniserial macro-setae.

Connective linear, distally articulating with pair of long pseudostyli (fig. 8); basal arms of connective fused. Aedeagus not articulated to connective but suspended in inverted position in phragma (socle therefore dorsal) between pseudostyli. Socle imperforate and with a pair of anterior and a pair of posterior arms. Shaft tubular, sickle-shaped, with ejaculatory duct opening on its anterior aspect. Tooth present either posteriorly on shaft (figs 13, 16, 18) or medially between posterior arms of socle (figs 5, 21). Gonopore apical, on ventral side of shaft. Styli short, with no pre-apical angle and with ventrally curved apophysis (fig. 3).

Seventh abdominal sternite of female forming very characteristic long, free, posteriorly projecting shield beneath base of ovipositor.

In 1961 Linnavuori transferred *Chlorotettix parabolatus* Naudé to the genus *Tetartostylus* and also described two new species from South Africa, *viz.* *T. angulatus* and *T. longistylus*. However, the male genitalia of the latter species are identical with those of the allotype of *parabolatus* and the specimens identified as *parabolatus* by Linnavuori (with a *var. spinosus*) are therefore a different species. Linnavuori's assignment of *Chlorotettix spadix* Naudé to the genus *Tetartostylus*, is also erroneous. The only other species of *Tetartostylus* known from the Ethiopian region is *T. acutus* described by Heller & Linnavuori (1968) from a single female.

Externally, all species of *Tetartostylus* are very much alike, but they show distinct differences in the structure of the male genitalia. It is generally difficult to associate females with the males, as populations collected on grass in the field may consist of more than one species. In the figures the pseudostyli are all drawn to the same scale in the different species; the same applies to the plates and to the aedeagi drawn in lateral view. The following species are recognized here.

*Tetartostylus parabolatus* (Naudé), figs. 1–10

***Chlorotettix parabolatus*** Naudé, 1926: 77  
***Tetartostylus longistylus*** Linnavuori, 1961: 483

**MALE.** Length from apex of crown to tips of tegmina 4,7–5,31 mm. Width of head across eyes 1,24–1,4 mm. Crown and pronotum uniformly yellowish-green, fronto-clypeus with brownish horizontal arcs. Maximum width of pronotum 1,08–1,25 mm. Tegmina yellowish-green and thoracic pleura dark. Plates very long (fig. 7), ventro-laterally with single row of about 12 macro-setae; contiguous for about half their length, then diverging. Apical third of plates curving dorsad, with tips spine-like and converging. Aedeagus large, evenly curved (fig. 6). Posterior arms of socle with short medial tooth between them (fig. 5). Pseudostyli very long, extending to hind margins of pygofer lobes; each terminally expanded and bent sideways, forming a somewhat twisted club with inner edge irregularly toothed (fig. 8); teeth of clubs varying considerably (fig. 9), even between pair of single species.

**FEMALE.** Length 5–6 mm; width across eyes 1,47–1,7 mm; maximum width of pronotum 1,3–1,54 mm. Seventh abdominal sternite rounded behind, about 1,3 times as long as width at base (fig. 10).

**MATERIAL EXAMINED:** Apart from the holotype ♀ and allotype ♂ (collected at Bloemfontein by J. C. Faure on 11.iv.1918 and 14.iv.1918 respectively), numerous other specimens from the following localities were also examined: SOUTH AFRICA: Bloemfontein, O.F.S.; Edenville, O.F.S.; Rosslyn, Tvl.; Knysna, C.P.; Stellenbosch, C.P.; Noordhoek (Cape Town).

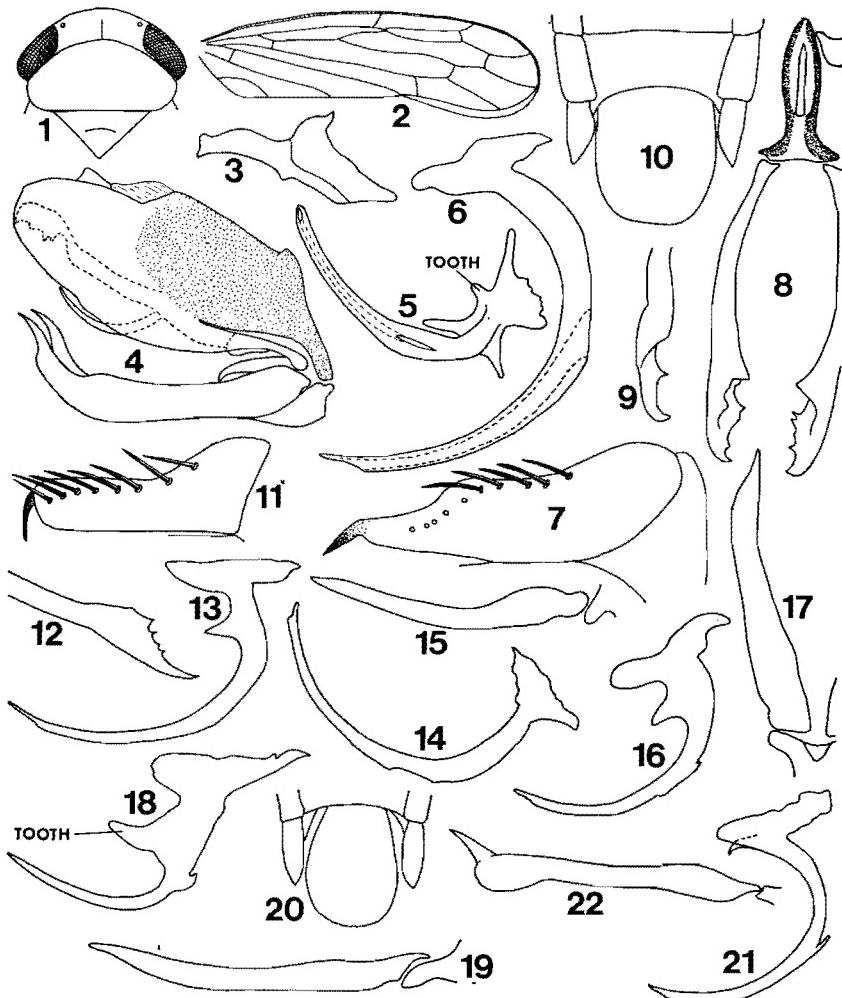
This is apparently the only species of *Tetartostylus* present in the Western Cape.

*Tetartostylus angulatus* Linnavuori, figs. 11–13

***Tetartostylus angulatus*** Linnavuori, 1961: 483

**MALE.** Length from apex of crown to tips of tegmina 4,4–4,76 mm. Coloration and structure of head and thorax very similar to that of *parabolatus*. Width of head across eyes 1,14–1,24 mm. Maximum width of pronotum 0,98–1,12 mm.

Pygofer lobes more slender than in *parabolatus*. Plates with mesal edges straight; bluntly rounded behind, with spine-like tips directed mesially (fig. 11); ventro-laterally



Figs. 1-22. *Tetartostylus* spp. 1-10. *T. parabolatus*. 1-8, allotype male. 1. Head and thorax, dorsal view. 2. Tegmen. 3. Right style, dorsal view. 4. Pygofer, lateral view (macrosetae not drawn). 5. Adeagus, ventro-lateral view. 6. Adeagus, lateral view. 7. Right plate and valve, ventral view. 8. Connective and pseudostyles, dorsal view. 9. Apex of pseudostyles in specimen from Stellenbosch. 10. Holotype female, 6th and 7th abdominal sternites. 11-13. *T. angulatus* Linnavuori, male. 11. Right plate, ventral view. 12. Apex of pseudostyles. 13. Adeagus, lateral view. 14-15. *T. pundus* spec. nov., holotype male. 14. Adeagus, lateral view. 15. Left pseudostyle, ventral view. 16-17. *T. brevistylus* spec. nov., holotype male. 16. Adeagus, lateral view. 17. Left pseudostyle, ventral view. 18-20. *T. longidentalus* spec. nov. 18-19. Holotype male. 18. Adeagus, lateral view. 19. Left pseudostyle, ventral view. 20. Female, 7th abdominal sternite. 21-22. *T. inflatus* spec. nov., holotype male. 21. Adeagus, lateral view. 22. Pseudostyles, lateral view.

with about 9 uniserial macro-setae. Aedeagus smaller than in *parabolatus* and shaft not evenly curved; basal part of shaft straight and bearing tooth (fig. 13). Pseudostyli slender, with apices asymmetrically expanded and variably serrate along inner edges (fig. 12); each terminally with long sharp tooth, which sometimes almost reaches hind margin of pygofer lobe.

FEMALE. Not identifiable at present.

MATERIAL EXAMINED: Linnavuori's types were not available for comparison, but the species is readily identifiable from his figures. Many specimens from Pretoria (Tvl.), Pilgrim's Rest (Tvl.), Verena (Tvl.), Rustenburg (Tvl.), Nebo (Middelburg, Tvl.) and Edenville (O.F.S.) were studied.

***Tetartostylus pundus* spec. nov., figs. 14–15**

MALE. Length from apex of crown to tips of tegmina 4,04–4,68 mm. General body colour yellowish. Width of head across eyes 1,06–1,22 mm. Crown slightly produced medially. Maximum width of pronotum 0,96–1,1 mm. Tegmina pale with yellowish veins.

Plates resembling those of *angulatus*, bluntly rounded behind, with mesially directed spine-like tips; ventro-laterally with 6–10 uniserial macro-setae. Shaft of aedeagus evenly curved (fig. 14); tooth situated between arms of socle and sometimes reduced. Pseudostyli pointed (fig. 15) and sometimes slightly hooked apically; short, extending posteriorly to about middle of pygofer lobes.

FEMALE. Not identifiable at present.

MATERIAL EXAMINED. ♂ Holotype: SOUTH AFRICA: Punda Milia, Kruger National Park, 16.i.1965 (M. Hoffman). In National Collection of Insects, Plant Protection Research Institute, Pretoria. Paratypes: SOUTH AFRICA: 5 ♂♂ Dendron (Tvl.), 21.i.1968, 26.iii.1969, 15.iv.1969, 7.v.1969, in light trap. SOUTH WEST AFRICA: 1 ♂ Abachaus, Damaraland. In National Collection of Insects, Plant Protection Research Institute, Pretoria; Transvaal Museum, Pretoria; University of Stellenbosch Collection.

***Tetartostylus brevistylus* spec. nov., figs. 16–17**

MALE. Length from apex of crown to tips of tegmina 4,31–4,75 mm. Ground colour yellowish. Width of head across eyes 1,15–1,25 mm. Crown slightly more angulate in front than in *parabolatus*. Maximum width of pronotum 1–1,12 mm. Tegmina pale, with yellowish veins.

Plates with apices abruptly bent dorsally and usually not reaching further back than about middle of pygofer lobes. Ventro-laterally with about 9 macro-setae. Aedeagus small, and shaft with tooth (fig. 16). Pseudostyli short and rather stout (fig. 17), not extending posteriorly beyond middle of pygofer lobes; pointed apically.

FEMALE. Not identifiable at present.

MATERIAL EXAMINED: ♂ Holotype: SOUTH AFRICA: Rosslyn (Tvl.), v.1971 (S. W. Theron). In S.A. Museum, Cape Town. Paratypes: SOUTH AFRICA: 8 ♂♂ Pretoria, 21.i.1970 (B. Buys); 2 ♂♂ 10 m. S. W. Verena (Tvl.), 6.ii.1969 (H. K.

Munro); 1 ♂ Derdepoort (Tvl.), 16.xi.1967 (C. M. Niemann); 1 ♂ Pietermaritzburg, 1968 (A. Connell); 1 ♂ Pretoria, i.1972 (E. Holm). In S.A. Museum, Cape Town, University of Stellenbosch Collection and National Collection of Insects, Plant Protection Research Institute, Pretoria.

**Tetartostylos longidentatus** spec. nov., figs. 18–20

MALE. Length from apex of crown to tips of tegmina 4,06–4,44 mm. Ground colour bright yellow. Width of head across eyes 1,12–1,24 mm. Crown slightly produced in front. Maximum width of pronotum 0,96–1,06 mm. Tegmina pale with yellowish veins.

Plates as in *brevistylus*, but more elongate and almost reaching tips of pygofer lobes; gradually narrowing posteriorly and apices only slightly curving dorsally; ventro-laterally with about 10 macro-setae. Shaft of aedeagus short and slender, but posterior tooth very large (fig. 18). Pseudostyli as in *brevistylus*; pointed but more slender and slightly longer (fig. 19).

FEMALE. Length 4,68–4,9 mm; width across eyes 1,3–1,38 mm; maximum width of pronotum 1,14–1,18 mm. Seventh abdominal sternite rounded behind, with narrow base (fig. 20); medial length about 4 times width at base.

MATERIAL EXAMINED. ♂ Holotype: SWAZILAND: Hlatikulu, 4.i.1969, collected by sweeping (J. G. Theron). In S.A. Museum, Cape Town. Paratypes: SWAZILAND 4 ♂♂; same data as holotype. SOUTH AFRICA: 1 ♂ Louis Trichardt i.ii.1928 (R. F. Lawrence); 4 ♀♀ same data as holotype. In S.A. Museum, Cape Town and University of Stellenbosch Collection.

**Tetartostylys inflatus** spec. nov., figs. 21–22

MALE. Length from apex of crown to tips of tegmina 4,2 mm. Ground colour yellowish. Width of head across eyes 1,12 mm. Maximum width of pronotum 0,96 mm. Tegmina greenish-yellow. Plates elongate, similar to those of *longidentatus* and almost reaching tips of pygofer lobes; apices only slightly curving dorsally; ventro-laterally with 9–10 macro-setae. Aedeagus resembling that of *parabolatus*, with shaft evenly curved and tooth between posterior arms of socle (fig. 21). Pseudostyli short, apex inflated and dorsally bearing a sharp tooth (fig. 22).

FEMALE. Unknown.

MATERIAL EXAMINED: ♂ Holotype: SOUTH AFRICA: Nelspruit, 5.vii.1972 (J. G. Theron). In S.A. Museum, Cape Town.

KEY TO MALES OF *TETARTOSTYLYS*

The following key will separate the males of the species of *Tetartostylys* at present known from Southern Africa:

- 1 Plates bluntly rounded behind, with spinelike apices sharply bent medially (fig. 11) . . . . . 2
- Plates gradually narrowing posteriorly; apices directed caudally (fig. 7) . . . . . 3
- 2 Pseudostyli elongate, with inner edge serrate sub-apically and terminating in strong tooth which almost extends to hind margin of pygofer lobe (fig. 12); tooth of aedeagus situated on shaft (fig. 13) . . . . . **T. angulatus** Linnauvori
- Pseudostyli simple, extending to about middle of pygofer lobe and pointed apically (fig. 15); tooth of aedeagus situated between posterior arms of socle **T. pundus** spec. nov.

- 3 Pseudostylus very long, extending to hind margin of pygofer lobe, apically forming bent club, with inner edge serrate (fig. 8); tooth of aedeagus situated between posterior arms of socle . . . . . **T. parabolatus** (Naudé)  
 Pseudostylus short, not extending posteriorly beyond middle of pygofer lobes; tooth of aedeagus situated either on shaft or between posterior arms of socle . . . . . 4
- 4 Pseudostylus with apex inflated and bearing long dorsal tooth (fig. 22) **T. inflatus** spec. nov.  
 Pseudostylus simple, pointed apically . . . . . 5
- 5 Shaft of aedeagus well-developed and tooth small (fig. 16); apical third of plates strongly curving dorsally . . . . . **T. brevistylus** spec. nov.  
 Shaft of aedeagus small, but tooth very large (fig. 18); apices of plates only slightly upturned . . . . . **T. longidentatus** spec. nov.

#### ACKNOWLEDGEMENTS

I should like to thank the following institutions for the loan of material:  
 Plant Protection Research Institute, Pretoria; South African Museum, Cape Town;  
 Transvaal Museum, Pretoria.

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Manuscript received 11 June 1973